FIG. 1

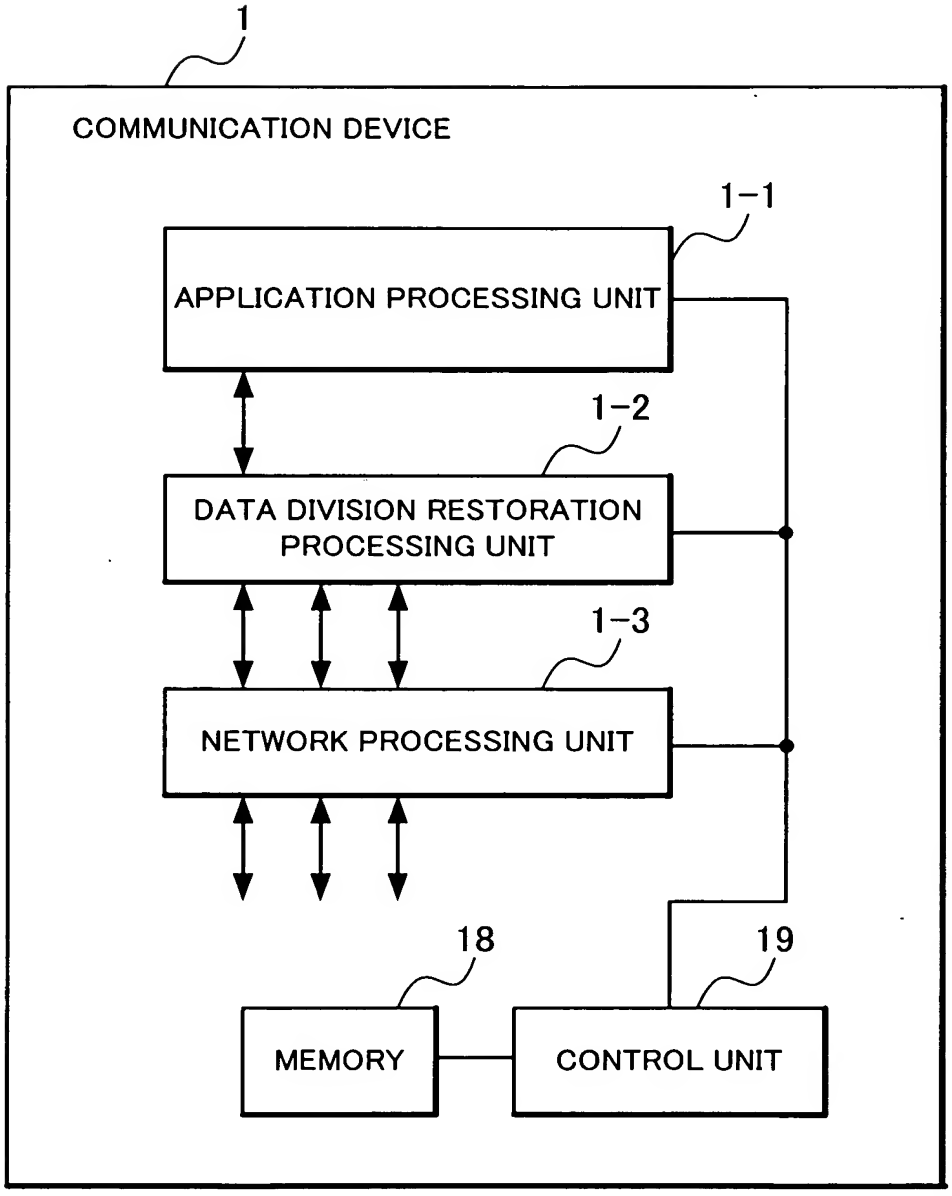

1
COMMUNICATION DEVICE
1-1
APPLICATION PROCESSING UNIT
1-2
DATA DIVISION RESTORATION PROCESSING UNIT
1-3
NETWORK PROCESSING UNIT
18
19
MEMORY
CONTROL UNIT

FIG. 2

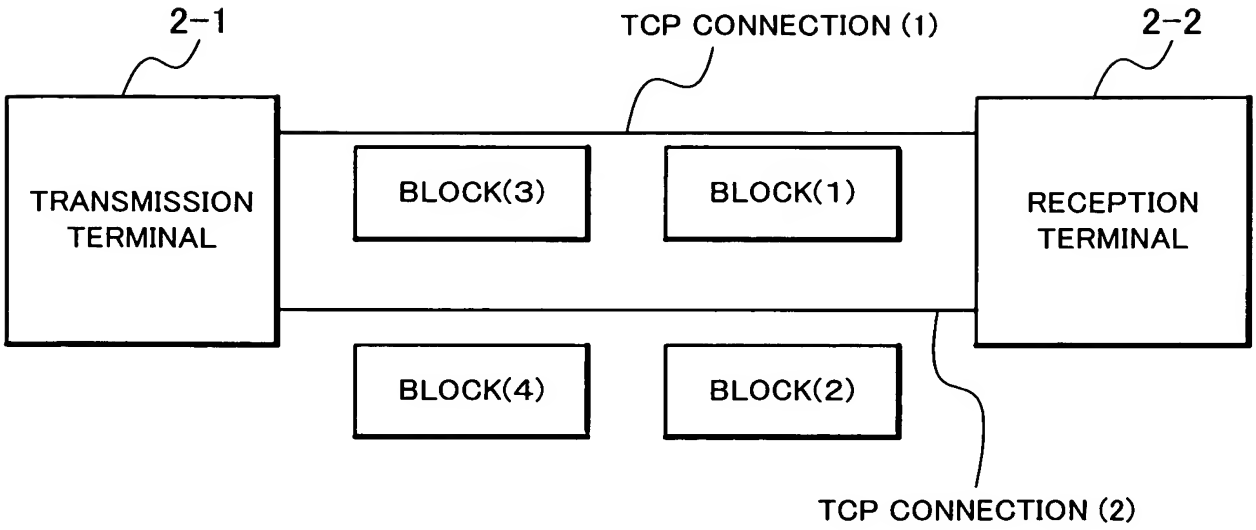


FIG. 3

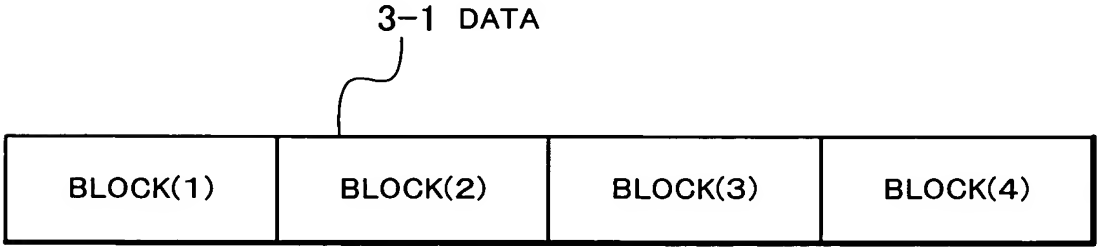


FIG. 4

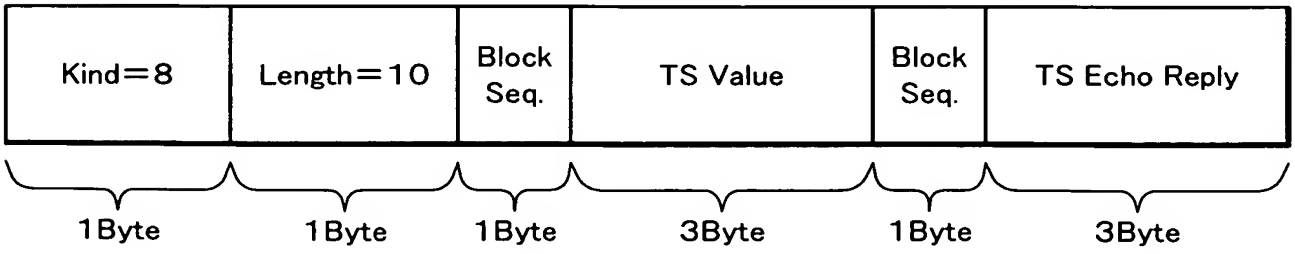


FIG. 5

TCP Timestamps Option (TSopt):

kind: 8

Length: 10 bytes

} IN CASE OF

Kind=8	10	TS Value(TSval)	TS Echo Reply(Tsecr)

FIG. 6

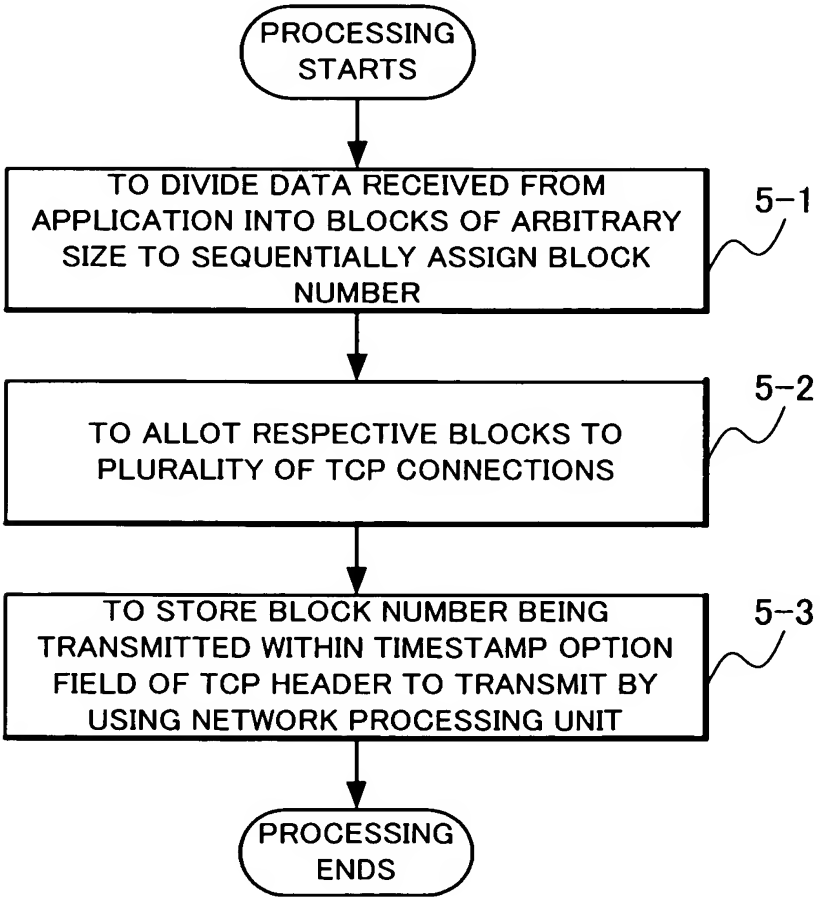


FIG. 7

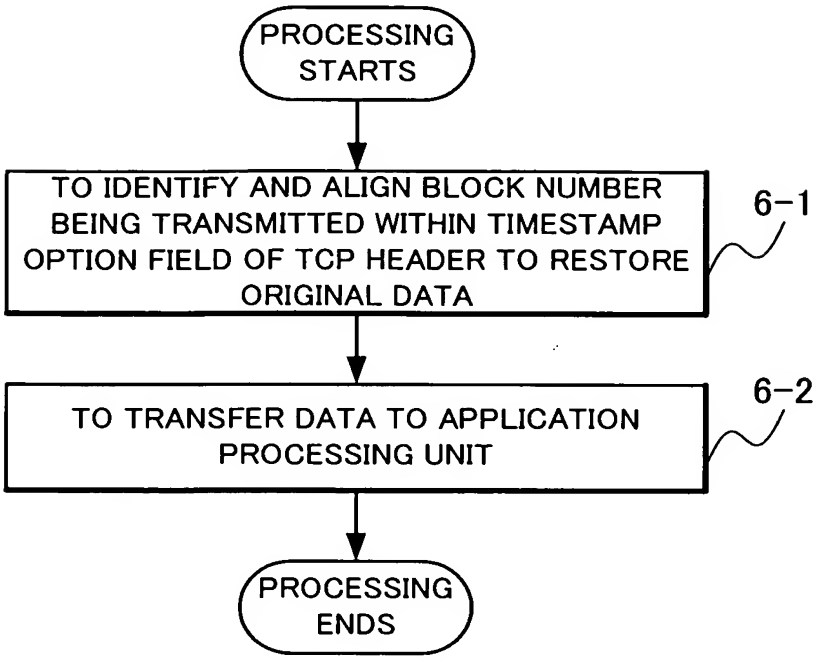

PROCESSING STARTS
TO IDENTIFY AND ALIGN BLOCK NUMBER BEING TRANSMITTED WITHIN TIMESTAMP OPTION FIELD OF TCP HEADER TO RESTORE ORIGINAL DATA
6-1
TO TRANSFER DATA TO APPLICATION PROCESSING UNIT
6-2
PROCESSING ENDS

FIG. 8

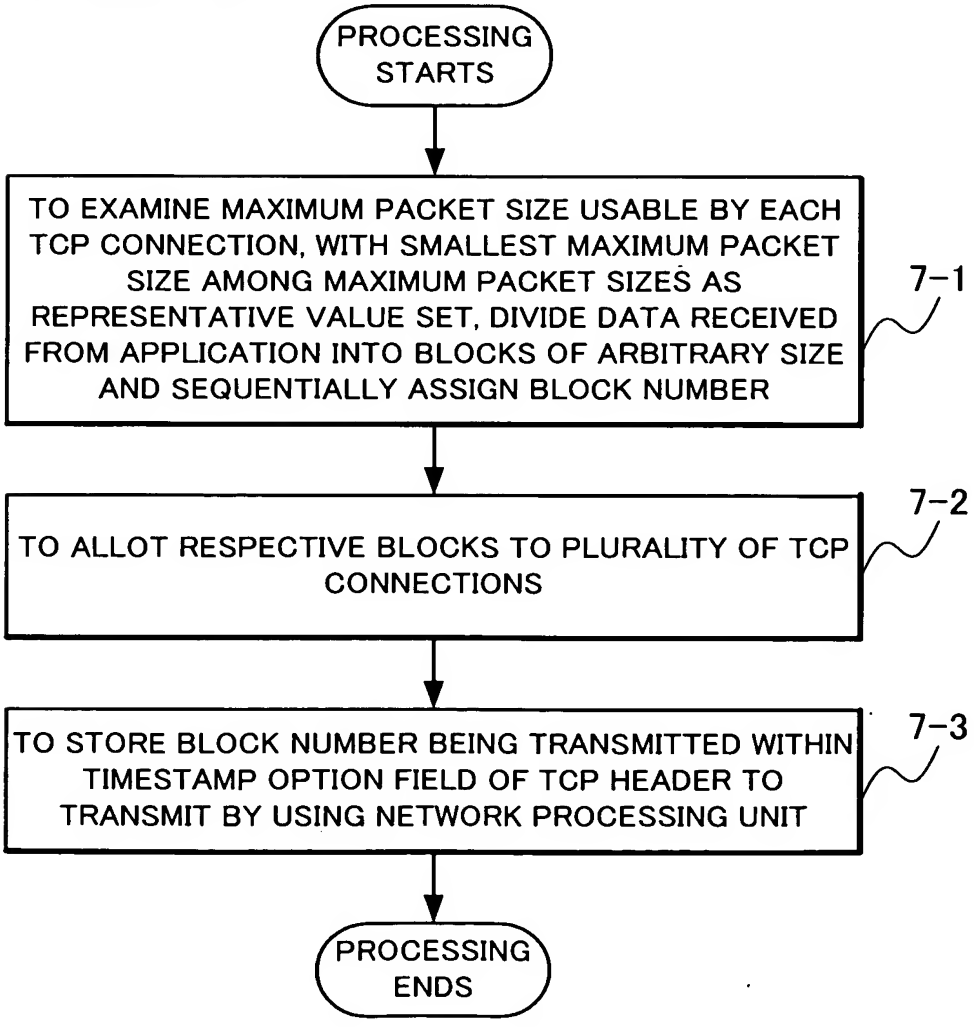

PROCESSING STARTS
TO EXAMINE MAXIMUM PACKET SIZE USABLE BY EACH TCP CONNECTION, WITH SMALLEST MAXIMUM PACKET SIZE AMONG MAXIMUM PACKET SIZES AS REPRESENTATIVE VALUE SET, DIVIDE DATA RECEIVED FROM APPLICATION INTO BLOCKS OF ARBITRARY SIZE AND SEQUENTIALLY ASSIGN BLOCK NUMBER
7-1
TO ALLOT RESPECTIVE BLOCKS TO PLURALITY OF TCP CONNECTIONS
7-2
TO STORE BLOCK NUMBER BEING TRANSMITTED WITHIN TIMESTAMP OPTION FIELD OF TCP HEADER TO TRANSMIT BY USING NETWORK PROCESSING UNIT
7-3
PROCESSING ENDS

FIG. 9

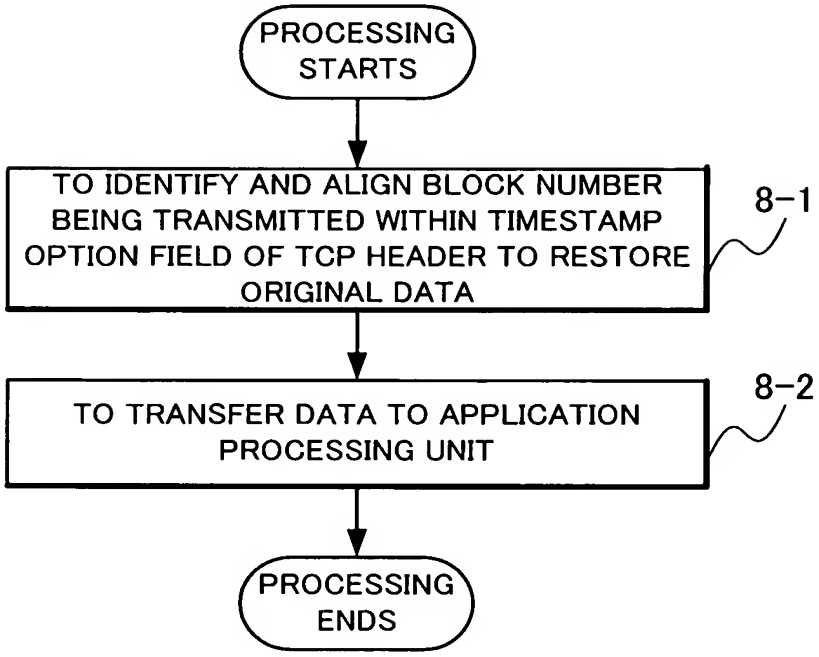

PROCESSING STARTS
TO IDENTIFY AND ALIGN BLOCK NUMBER BEING TRANSMITTED WITHIN TIMESTAMP OPTION FIELD OF TCP HEADER TO RESTORE ORIGINAL DATA
8-1
TO TRANSFER DATA TO APPLICATION PROCESSING UNIT
8-2
PROCESSING ENDS

FIG. 10

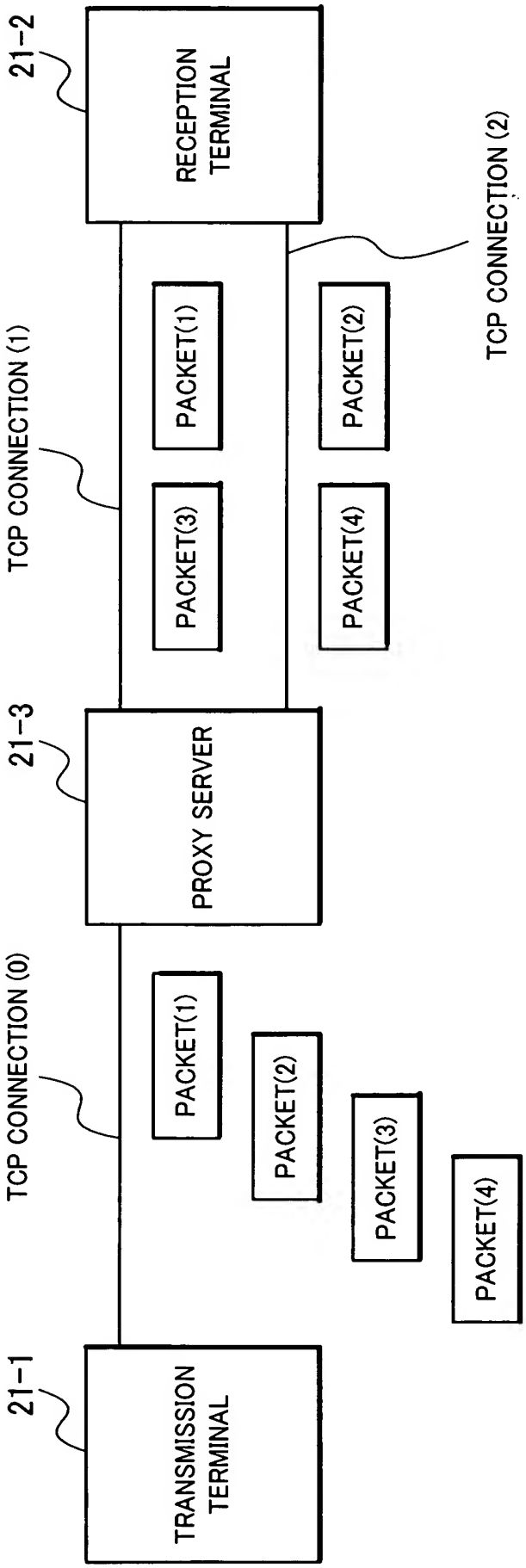

21-1
TRANSMISSION TERMINAL
21-3
PROXY SERVER
21-2
RECEPTION TERMINAL
TCP CONNECTION (0)
TCP CONNECTION (1)
TCP CONNECTION (2)
PACKET(1)
PACKET(2)
PACKET(3)
PACKET(4)
PACKET(1)
PACKET(3)
PACKET(2)
PACKET(4)

FIG. 11

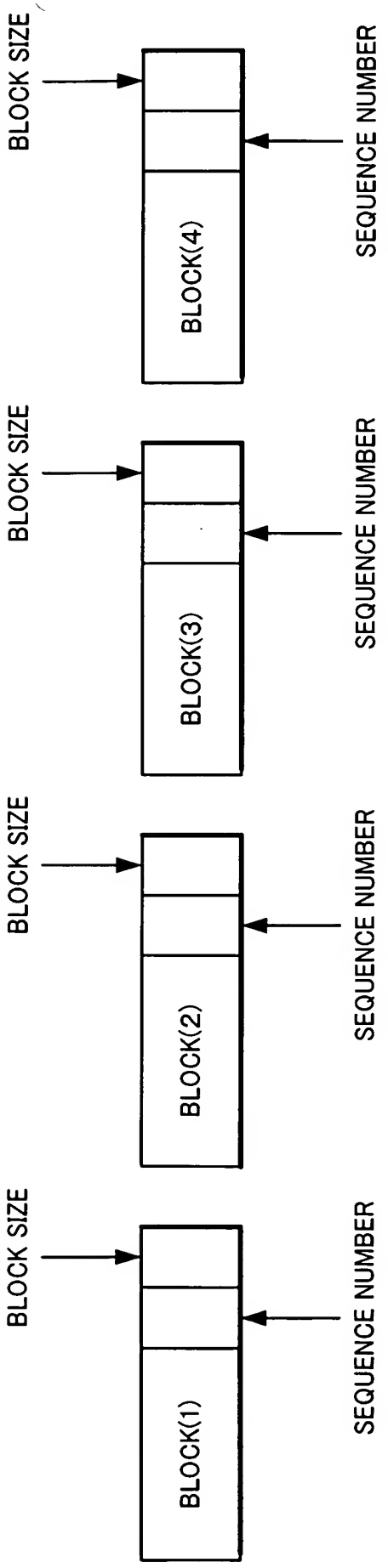

BLOCK SIZE
SEQUENCE NUMBER
BLOCK(4)
BLOCK SIZE
SEQUENCE NUMBER
BLOCK(3)
BLOCK SIZE
SEQUENCE NUMBER
BLOCK(2)
BLOCK SIZE
SEQUENCE NUMBER
BLOCK(1)

FIG. 12

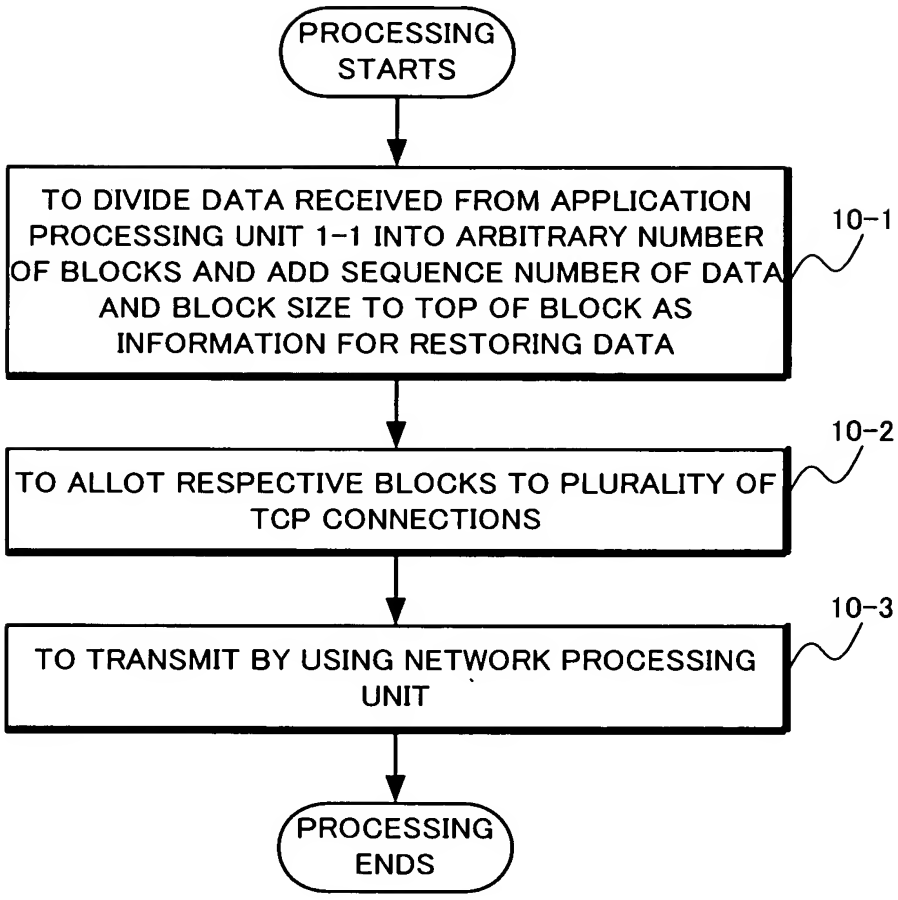

PROCESSING STARTS
TO DIVIDE DATA RECEIVED FROM APPLICATION PROCESSING UNIT 1-1 INTO ARBITRARY NUMBER OF BLOCKS AND ADD SEQUENCE NUMBER OF DATA AND BLOCK SIZE TO TOP OF BLOCK AS INFORMATION FOR RESTORING DATA
10-1
TO ALLOT RESPECTIVE BLOCKS TO PLURALITY OF TCP CONNECTIONS
10-2
TO TRANSMIT BY USING NETWORK PROCESSING UNIT
10-3
PROCESSING ENDS

FIG. 13

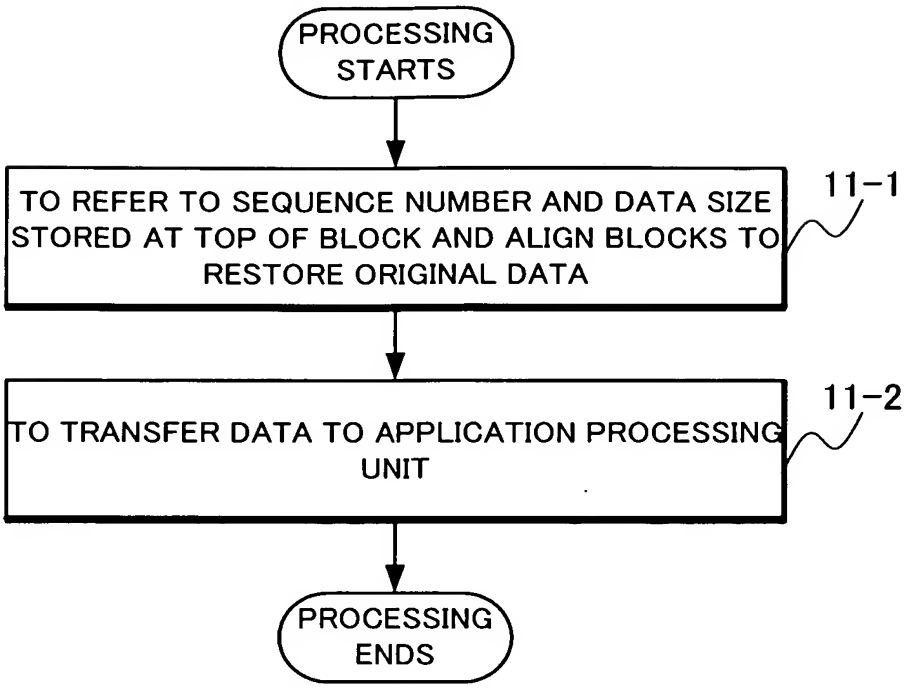

PROCESSING STARTS
TO REFER TO SEQUENCE NUMBER AND DATA SIZE STORED AT TOP OF BLOCK AND ALIGN BLOCKS TO RESTORE ORIGINAL DATA
11-1
TO TRANSFER DATA TO APPLICATION PROCESSING UNIT
11-2
PROCESSING ENDS

FIG. 14

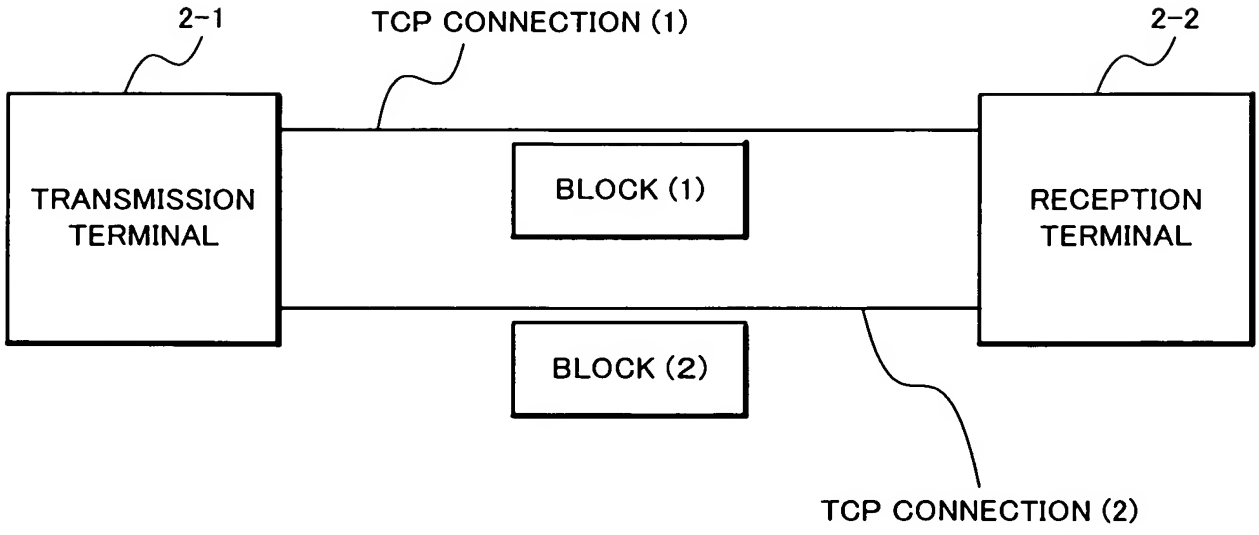

2-1
TCP CONNECTION (1)
2-2
TRANSMISSION TERMINAL
BLOCK (1)
RECEPTION TERMINAL
BLOCK (2)
TCP CONNECTION (2)

FIG. 15

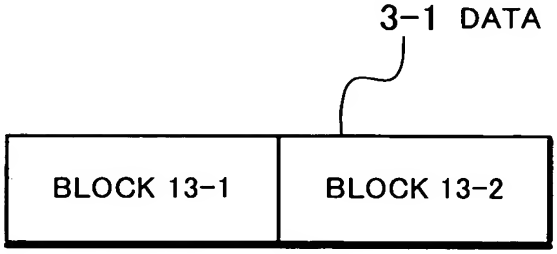

3-1 DATA
BLOCK 13-1
BLOCK 13-2

FIG. 16

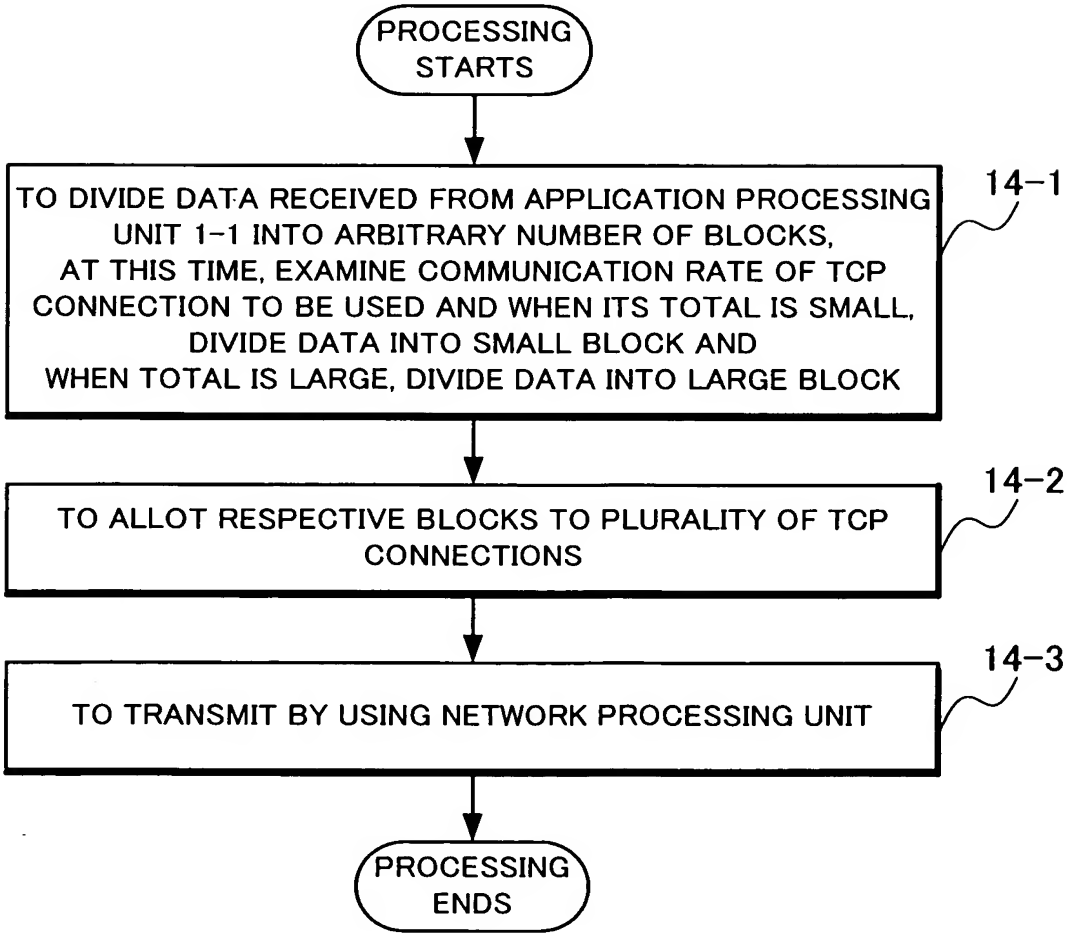
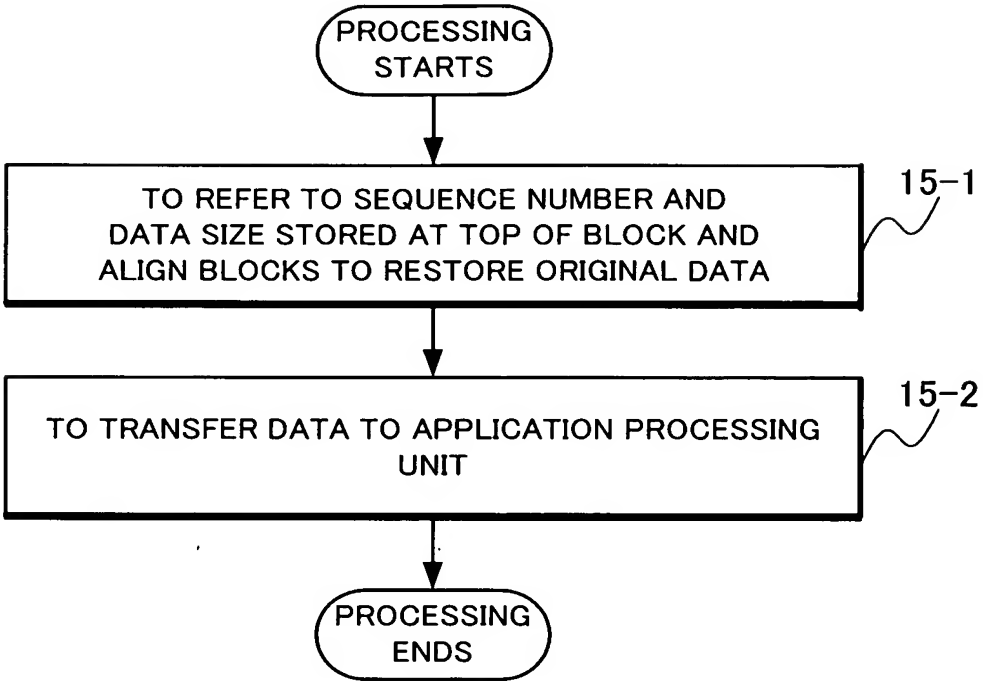

PROCESSING STARTS
TO DIVIDE DATA RECEIVED FROM APPLICATION PROCESSING UNIT 1-1 INTO ARBITRARY NUMBER OF BLOCKS, AT THIS TIME, EXAMINE COMMUNICATION RATE OF TCP CONNECTION TO BE USED AND WHEN ITS TOTAL IS SMALL, DIVIDE DATA INTO SMALL BLOCK AND WHEN TOTAL IS LARGE, DIVIDE DATA INTO LARGE BLOCK
14-1
TO ALLOT RESPECTIVE BLOCKS TO PLURALITY OF TCP CONNECTIONS
14-2
TO TRANSMIT BY USING NETWORK PROCESSING UNIT
14-3
PROCESSING ENDS

FIG. 17


PROCESSING STARTS
TO REFER TO SEQUENCE NUMBER AND DATA SIZE STORED AT TOP OF BLOCK AND ALIGN BLOCKS TO RESTORE ORIGINAL DATA
15-1
TO TRANSFER DATA TO APPLICATION PROCESSING UNIT
15-2
PROCESSING ENDS